



April 30, 2009

Attn: Ms. Harriet Beale
Municipal Permit Comments
WA Department of Ecology
Water Quality Program
P.O. Box 47696
Olympia, WA 98504-7696

SUBJECT: Bellevue's Comments on Ecology's Proposed Modifications to the Western Washington Phase II Municipal Stormwater Permit

Dear Ms. Beale,

Thank you for the opportunity to review and comment on the March 18, 2009 proposed modifications to the Western Washington Phase II Municipal Stormwater Permit. Bellevue also appreciates the Department of Ecology's request for proposals that will reduce the costs of permit compliance including, but not limited to, extending interim deadlines in the permit and/or innovative practices that result in compliance with the permit (or better) at a lower cost.

This letter primarily provides permit modification proposals that respond to the outcomes of the appeals, the Phase I stormwater manual equivalency process, the widespread commitment of many jurisdictions and agencies to developing a regional monitoring program, and the current economic challenges we all face. We believe the proposals maintain the Permit's goals for protecting and improving water quality that we all share.

CITY OF BELLEVUE COMMENTS AND PROPOSALS

1. S5C4 Controlling Runoff from New Development, Redevelopment and Construction Sites

Proposed Ecology Modification: Ecology proposes an effective date of November 16, 2009 for the controlling runoff ordinance required to be adopted by August 15, 2009.

Bellevue Comments and Proposals: Bellevue concurs with Ecology's proposal to provide several months between the ordinance adoption date and the ordinance effective date to allow for revisions of stormwater management and construction standards, permit applications and submittal requirements, internal permit review and inspection procedures, documentation procedures, training, and local development community outreach. However, Bellevue recommends extending both the ordinance adoption and the effective dates as follows and for the reasons listed.

- A. **Extend the controlling runoff ordinance adoption date from August 15, 2009 to November 16, 2009** to allow Phase II permittees sufficient time to incorporate the Pollution Control Hearings Board decisions into the adoption process and evaluate equivalent Phase I manuals. Specifically:
- The Board's decision to leave the one-acre threshold in effect was made in February 2009 and requires additional time and steps in an already tight code adoption schedule. The additional time and steps are necessary to inform the public and elected officials of the options and obtain direction on which option to implement through the code revisions (i.e., one standard jurisdiction-wide or two standards dependent on site disturbance).
 - Allow adequate time for public review and comment periods for two policy issues instead of one; the above options and the entire NPDES code revisions package (which includes illicit discharge detection and elimination, controlling runoff, maintenance standards).
 - Analysis of potential equivalent Phase I Stormwater Manuals has been delayed and challenging because the Manuals became available to Phase II permittees at varying times, equivalency status was unclear and analysis is more complex because it requires analysis of the Manual and associated codes and policies.
- B. **Extend the effective date for the controlling runoff ordinance from the proposed November 16, 2009 to January 1, 2010** for the following reasons:
- Provides additional time for the code adoption process noted above.
 - Provides additional time to revise existing municipal stormwater management and construction standards (separate from drafting and adopting code revisions), permit applications and submittal requirements, internal permit review, inspection and documentation procedures including those for low impact development best management practices, training, and local development community outreach.
 - Provides efficiency gains for municipalities because annual reporting beginning January 1 aligns with other development services reporting processes that are based on the calendar year.
 - Provides better alignment with NPDES permit annual report requirements which are based on the calendar year and a January 1, 2010 implementation date is easy to remember.

2. S5C3b Illicit Discharge Detection and Elimination (IDDE)

Proposed Ecology Modification: None. Section S5C3b of the Phase II permit requires permittees to adopt and implement the illicit discharge detection and elimination (IDDE) ordinance by August 15, 2009.

Bellevue Comments and Proposals: Bellevue strongly recommends modifying the permit to make the adoption and effective dates for the IDDE and the controlling runoff ordinances the same. This means extending the IDDE ordinance adoption and effective dates to be consistent with those for controlling runoff conditions as follows and for the reasons listed.

- A. **Extend the S5C3b IDDE ordinance adoption date from August 15, 2009 to November 16, 2009 and the effective date from August 15, 2009 to January 1, 2010**

so that they are the same as those for S5C4 controlling runoff modifications for the following reasons.

- Making the modified ordinance adoption and implementation dates the same for both requirements is consistent with the original permit structure in which they are the same.
- Many Phase II permittees, including Bellevue, are drafting and processing both the controlling runoff and IDDE code revisions together. Some revisions in controlling runoff and IDDE are interrelated and need to be consistent in both approach and implementation. For example, escalating enforcement provisions that address illicit discharges resulting from development-permitted activities and those that result from existing development, business and residential property land uses and activities need to be consistent in both approach and implementation. Extending the IDDE deadlines to be consistent with those for the controlling runoff deadlines allow this efficient, effective process to continue and makes it easier to implement.
- Extending the implementation date allows additional time to revise IDDE enforcement procedures and forms, tracking systems, documentation procedures, training, and for local development community outreach on the changes.
- Provides efficiency gains for municipalities because annual reporting beginning January 1 aligns with other reporting processes that are based on the calendar year.
- Provides better alignment with NPDES permit annual report requirements which are based on the calendar year and a January 1, 2010 implementation date is easy to remember.

3. S8C Preparation For Future Long-Term Monitoring

Proposed Ecology Modifications: None. Briefly, section S8C requires *each* Western Washington Phase II permittee to develop the following information by December 31, 2010 in preparation for implementing a monitoring program (modeled on the one currently required in Phase I permits) in the next NPDES Phase II permit (2012):

- ❖ S8C.1a Stormwater Monitoring: Identify 2-3 municipal outfalls (the number required depends on population) representing different land uses for permanent installation and operation of flow-weighted composite sampling equipment. Provide site maps and descriptions. Document how sites are selected, justify the basin size (based on a comparison of the times of concentration with rainfall durations for typical seasonal storms).
- ❖ S8C. 1b SWMP Effectiveness Monitoring: Identify two suitable effectiveness monitoring questions and select sites where monitoring will be conducted. This monitoring shall include, at a minimum, plans for stormwater, sediment or receiving water monitoring of physical, chemical and/or biological characteristics. For each question, develop a monitoring plan.

Bellevue Comments and Proposals: Bellevue strongly recommends extending the deadline for developing the Section 8C Preparation for Future Long Term Monitoring information as follows and for the reasons listed.

A. **Extend the S8C Preparation for Future Long Term Monitoring deadline from December 31, 2010 to December 31, 2011 and urge Phase II municipalities to sign up for the Association of Washington Cities (AWC) and Washington State Association of Counties (WSAC) monitoring consortium email distribution list** for the following reasons.

1. Future Phase II permit monitoring program requirements are unknown.
 - The current future Phase II monitoring requirements were based on those in the current Phase I permit. Since the permits were issued, Ecology, the environmental community, the development community and both Phase I and II municipal permittees have been working together through the Puget Sound Monitoring Consortium to develop a tangible study design by summer of 2010 for the next set of NPDES permits that can reduce duplication of efforts and improve the quality of environmental information. (Attachment 1).
 - A ‘Stormwater Work Group’ was established by Ecology and will transition to the Puget Sound Partnership in July 2009. Its charge is to “develop a regional stormwater monitoring and assessment program, focused on developed and developing lands, which can begin after June 2010. This deadline was established by the Department of Ecology as necessary for the strategy to be useful in developing the monitoring requirements to be included in the next round of municipal stormwater NPDES permits.” (Attachment 2)
 - Ecology, the Puget Sound Partnership and the Washington Forum on Monitoring support the Consortium’s and Stormwater Work Group’s work to develop a coordinated, effective monitoring program for the next NPDES municipal stormwater permits. (Attachment 1)
 - The regional stormwater monitoring and assessment program that is being developed is expected to be an innovative program that results in compliance with the permit monitoring goals at a lower cost.
 - Phase II municipalities are urged to sign up for the AWC and WSAC monitoring consortium email distribution list to ensure that the 86 Western Washington Phase II municipalities are kept informed and provided opportunities to participate (as resources allow) in the development of the regional monitoring plan and implementation compliance options for the next NPDES permits.
2. Limited resources, economic impacts: Until monitoring conditions for the next Phase II permit and implementation compliance options are known, dedicating resources to complying with these “potential” monitoring requirements is wasteful.

- Phase II municipalities have limited resources and those are directed in this permit term to making this regional monitoring effort meaningful, useful, successful, to implementing the Permit’s Stormwater Management Program and to managing and responding to local stormwater issues.
 - Municipal budget approvals for new resources to support permit implementation have been reduced and/or placed on hold in many cases due to the recession.
 - See the A.1 comments (above) about the development of the next permit’s monitoring program requirements.
3. Flexibility and Fiscal Stewardship. Extending the deadline to December 31, 2011 allows Ecology the time to evaluate the Stormwater Work Group’s regional stormwater monitoring and assessment program and modify the current ‘preparation for future long-term monitoring’ requirements to align with the program.
 4. No data is lost by delaying these requirements because none is required to be collected prior to the next permit term.
 5. It is likely that the monitoring program and implementation compliance options developed for Puget Sound Phase II municipalities will also be applicable to the other Western Washington Phase II municipalities.
4. S5C5a Pollution Prevention and Operation and Maintenance for Municipal Operations and S5C4c(ii) Post-Construction (private) Stormwater Facilities and BMP Maintenance

Proposed Ecology Modifications: None. Both sections address the maintenance standards and maintenance performance timeframes for storm facilities; Section S5C5a addresses those for municipal storm facilities and Section S5C4c(ii) addresses those for privately-owned storm facilities. The standards and timeframes are the same, regardless of ownership.

Bellevue Comments and Proposal: These sections currently have three different maintenance performance timeframes of “within 6 months,” “within 9 months” and “within one year” to perform maintenance of storm facilities that does not require capital construction. **Bellevue recommends consolidating these three different timeframes into one maintenance performance timeframe of “within 1 year” (for maintenance that does not require capital construction)** for the following reasons.

- The differentiation in timeframes appears arbitrary and adds an unnecessary burden and complexity to tracking and documenting maintenance performance for tens of thousands of facilities.
- Expending resources and staff to track storm facilities maintenance performance to three different timeframes results in an inefficient use of limited maintenance resources and staff.
- There appears to be no overall benefit in a shorter turnaround time on typical maintenance (6 months) and re-vegetation (9 months) compared to 1 year timeframe for wet pool and retention/detention ponds.

- Changing all maintenance performance timeframes to “within one year,” except for maintenance that requires capital construction, is more cost effective and will not compromise the overall protection of stormwater water quality.

Thank you for your consideration of these comments and proposals. If you have any questions, please contact Phyllis Varner, NPDES Permit Coordinator, at 425-452-7683.

Sincerely,

Denny Vidmar
Bellevue Utilities Director

Enclosed:

Attachment 1: April 17, 2008 Ecology letter RE PS Monitoring Consortium – NPDES Permits

Attachment 2: January 27, 2009 Stormwater Work Group’s Work Plan



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000

711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 17, 2008

Honorable Members
Puget Sound Monitoring Consortium
Governance and Technical Advisory Committees
(through Karen Dinicola, Project Manager)

RE: PS Monitoring Consortium – NPDES Permits

Dear Ladies and Gentlemen:

The Department of Ecology (Ecology) very much appreciates your work on the Puget Sound Monitoring Consortium (Consortium). Please know that Ecology shares your interest in ensuring that the Consortium will be of value to all parties. In particular, we acknowledge that local governments are concerned about the prospect of new monitoring requirements that could be included in future National Pollutant Discharge Elimination System (NPDES) permits.

The Consortium was convened in part to address local governments' requests that Ecology and other agencies look for ways to reduce duplication of efforts and improve the environmental information that is produced as a result of required monitoring activities. The Puget Sound Partnership and the Washington Forum on Monitoring support the Consortium's efforts to establish a coordinated monitoring and assessment program for Puget Sound. I believe that a truly integrated program will address local frustrations and deliver efficient and effective monitoring for the Sound.

Ecology expects the coordinated monitoring and assessment program's future work to inform our policy and management decisions. As you know, Ecology is responsible for administering the Clean Water Act in Washington State. Ecology adopts water quality standards, writes and issues NPDES permits, develops the state nonpoint source pollution control plan, assesses the condition of state waters, and develops water cleanup plans for waters not attaining standards.



While specific permit conditions imposing monitoring requirements must comply with state and federal law, it is our objective that monitoring requirements be as meaningful, effective, and efficient possible. I understand that the Consortium will soon be launching several pilot projects, including a process to design a scientific study, that evaluate the effectiveness of stormwater management practices, including monitoring requirements. These pilot projects will contribute to our understanding of the ecosystem, and could be incorporated into future NPDES stormwater permit monitoring requirements. In order to meaningfully provide input to the next cycle of the municipal stormwater permits, Ecology needs to have a tangible study design in hand by the summer of 2010, at the latest. With your help, we can accomplish that objective.

Ecology is committed to the Consortium process and will continue to work to achieve the goals of a coordinated monitoring and assessment program. We believe that a successful program can be achieved by bringing the best thinking of local governments and other Consortium members to the table. If you have questions about how to move forward with discussions about future permit requirements, please contact Bill Moore of our Water Quality Program at bmoo461@ecy.wa.gov / (360) 407-6444.

Sincerely,



Jay J. Manning,
Director

cc: Dave Williams, Association of Washington Cities
Eric Johnson, Washington Association of Counties
Eric Johnson, Washington Public Ports Association
Grant Nelson, Association of Washington Business
Bill Moore, Water Quality Program - ECY
Karen Dinicola, Water Quality Program - ECY

STORMWATER WORK GROUP

WORK PLAN

Formally adopted at the Work Group meeting on January 27, 2009

PURPOSE AND OBJECTIVES

A broad, comprehensive regional monitoring and assessment strategy and plan are needed for Puget Sound. This strategy will provide a better understanding of the relative magnitudes of the sources, inputs, and impacts of pollution into fresh and marine waters from all land uses and human activities.

The purpose of the Stormwater Work Group is to develop a regional, cooperative monitoring and assessment strategy that is focused on enabling us to know whether or not our management actions are successfully reducing harm caused to Puget Sound by stormwater from developed and developing lands. The Work Group will help to develop a comprehensive program over time, in steps, starting with priority questions and data needs and building from and coordinating with other monitoring and assessment efforts. This document is intended to guide the processes to create the documents and other products that are described in the charter and bylaws of the Stormwater Work Group.

The Stormwater Work Group is charged with the following near-term objective: develop a regional stormwater monitoring and assessment program, focused on developed and developing lands, which can begin after June 2010. This deadline was established by the Department of Ecology as necessary for the strategy to be useful in developing the monitoring requirements to be included in the next round of municipal stormwater NPDES permits.

This timeline and approach also helps meet the Puget Sound Partnership's mandate to develop an ecosystem monitoring program. The program developed by the Work Group will have a coordinated implementation plan for three basic study design components:

1. Long-term status and trends monitoring to assess stormwater impacts on beneficial uses. This component of the monitoring and assessment strategy is likely to include sampling of various media (water, sediment, biota) for analysis of contamination or other impacts from stormwater at sites representing the full range of urbanization in Puget Sound.
2. Characterizing stormwater pollutant concentrations and loadings from the full spectrum of urbanization in the Puget Sound basin. This characterization effort will examine impacts from various activities, land uses, and other associated variables that contribute to contaminant loading rates. This component likely involves end-of-pipe sampling and/or flow quantification studies.
3. Effectiveness of management actions that are specifically intended to better control stormwater volumes and/or reduce pollutant loadings. This component likely involves site scale or sub-basin scale studies.

Each of the three components also will be coordinated through direct interaction with other work groups that currently exist and/or may be convened by the Puget Sound Science Panel in the near future. The program developed by the Work Group will be submitted to both Ecology and the Puget Sound Partnership upon its completion. Next steps for further developing the strategy should also be identified for Ecology and Partnership feedback.

STORMWATER WORK GROUP

This draft work plan lays out the proposed tasks that need to be completed, their timelines, and the roles and responsibilities of various parties in completing the work. This work plan is meant to be a starting point for work planning discussions of the Stormwater Work Group and will be modified based upon their input and progress toward completing the identified tasks.

WORK TASKS

The following seven tasks (and subtasks) are proposed to be completed before June 30, 2010.

Task 1: Convene a broad stakeholder committee to provide direction and input for the development of the regional stormwater monitoring and assessment program

A Launch Committee was established by the Puget Sound Monitoring Consortium to get the Stormwater Work Group started and plan an approach to developing a regional and assessment program. A broader, more representative committee is needed to engage more regional stakeholders in the process and to use their perspectives to develop the most functional regional and assessment program possible. The membership composition of the Stormwater Work Group is outlined in the draft charter and bylaws. Invitations to participate in the Stormwater Work Group will be sent no later than September 4, 2008.

The first Stormwater Work Group meeting on October 9, 2008 will orient members to the proposed goals of the Stormwater Work Group, the draft charter, bylaws and work plan, and the desired outcomes. The Stormwater Work Group will adopt a work plan that lays out tasks, timelines, deliverables, and responsible parties for developing the monitoring and assessment program. This document represents a straw dog work plan for the Stormwater Work Group to work from, since they will be asked at their first meeting to keep the process moving steadily forward. Adopting a work plan will be the first key task for the group in order for the monitoring and assessment program development to get meaningfully and productively started.

At some point the Stormwater Work Group should discuss the desire/need for a steering committee or similar subcommittee to continue. In the short-term a subcommittee could keep the work moving forward on the aggressive timelines proposed in this Work Plan. Once the development of the monitoring and assessment program is underway, the group could revisit the need for a steering committee; it might be considered preferable to establish subcommittees to address specific issues as they arise.

Deliverables: Approved charter, bylaws, and work plan

Timeline: Introduce at the first Stormwater Work Group meeting on October 9, 2008.
Approve charter and bylaws at the second meeting on December 11, 2008.
Approve work plan at the third meeting on January 27, 2009.

STORMWATER WORK GROUP

Task 2: Review and refine preliminary assessment questions within each component of the monitoring and assessment program

The Launch Committee developed a draft list of assessment questions (see Appendix 1) in August 2008 at the request of the Puget Sound Partnership's Science Panel, who later identified areas of research priorities for stormwater in its Biennial Science Work Plan (see Appendix 2). The initial draft list represented the views of the committee members as a group, but did not receive broader perspectives given the time constraints. The stormwater-related assessment questions are a subset of broader ecosystem recovery assessment questions and should also be considered in that context. This task should include a strategy for exchanging ideas with other work groups in Puget Sound.

Many of these preliminary assessment questions are redundant, or overlap; some are all-encompassing or vague and need to be broken down into more focused questions. A subcommittee can refine the assessment questions, categorizing them into elements and focusing them into smaller pieces so that questions are manageable and answerable with a particular strategy and reasonable to fund and implement.

At its first meeting on October 9, 2008 the Stormwater Work Group will review the draft list and task the Steering Committee with providing a first cut at prioritizing the questions for environmental impacts, characterization, and management effectiveness. Stormwater Work Group members will provide the Steering Committee with additional input from the parties they represent in advance of the Steering Committee meetings on November 12 and 25, 2008.

Deliverables: Master list of stormwater assessment questions, categorized by the three basic elements (see above) and reduced into manageable and fundable pieces.

Timeline: Steering Committee meetings on October 15, 2008 and November 12 and 25, 2008: complete and deliver revised list to the Work Group no later than December 4, 2008 with a recommended process and criteria by which the Stormwater Work Group should make its decision.

Task 3: Identify priority assessment questions for each component of the monitoring and assessment strategy

The Steering Committee will, assisted by the facilitator, propose criteria by which the Stormwater Work Group can prioritize assessment questions and provide transparency in the decision making. Criteria for prioritization could include: scale of problem, connection to regional science issues, need for information or certainty in developing and/or implementing actions to address stormwater impacts, urgency, and others.

The Work Group will prioritize questions for at least two components of the monitoring and assessment strategy at its second meeting on December 11, 2008 (see next task); the prioritized list will be formally approved at the next Work Group meeting in January 2009. The Work Group may continue this prioritization exercise for another component at subsequent meetings.

STORMWATER WORK GROUP

The Stormwater Work Group will apply those criteria to select priority assessment questions, or monitoring objectives, for 1) ambient status and trends, 2) stormwater characterization, and 3) management action effectiveness – but not necessarily in this order. The priorities might include both short-term needs that could be the basis for the strategies and designs developed first, and equally important questions or objectives that could be addressed over a longer time frame.

This task should include a strategy to exchange ideas with other work groups in Puget Sound as priorities are identified and the tasks are set forth for the next two years. It is important from the beginning to create ways to break down the “silos” that characterize current monitoring efforts.

Deliverables: Priority stormwater assessment questions that will be used as the basis for developing the components of the stormwater monitoring and assessment strategy and design.

Timeline: The Stormwater Work Group will begin the discussion of prioritizing assessment questions or monitoring objectives in October 2008. The Steering Committee will refine the questions and propose criteria for prioritization in November 2008, and the Work Group will prioritize the questions in December 2008. Groups of technical experts comprised of representatives of the caucuses of the Work Group identify prioritized monitoring objectives and present these to the Work Group in February 2009; these priorities will be further discussed at the Task 7 workshop.

Task 4: Direct three Task Groups to develop monitoring and assessment strategies, one for each of the three basic components of the assessment program, based on the highest priority questions identified by the Stormwater Work Group

Monitoring and assessment strategies will be developed for 1) ambient status and trends monitoring to assess impacts to beneficial uses, 2) stormwater characterization to calculate pollutant loadings, and 3) management action effectiveness. The strategies will include: hypotheses to be tested, data collection and methods and protocols, laboratory and other data analysis methods, timelines, numbers and locations or other descriptions of sampling sites, total and itemized budget estimates, etc.

The strategies will be developed by Task Groups. The Stormwater Work Group will identify a recommended set of members for the Task Group, including people that are not members of the Stormwater Work Group. Each Task Group will include technically knowledgeable agency staff and specific subject experts appropriate to the monitoring component being designed. Each Task Group may be led by a consultant.

The Project Manager will ensure coordination and facilitate communication among the Task Groups and other related monitoring and assessment programs. The Stormwater Work Group will identify one or more official liaisons to participate in each Task Group. Each Task Group will explicitly involve representatives of current monitoring and assessment efforts and will develop a strategy for exchanging ideas with other work groups in Puget Sound. *For example:*

- ◇ The Stormwater Characterization Task Group will involve Ecology, municipal stormwater permittee representatives, and others to build from: the lessons learned in implementing the

STORMWATER WORK GROUP

current Phase I permit, the EPA-funded toxics reduction strategy effort, and other stormwater monitoring.

- ◇ The Ambient Status and Trends Task Group will likely involve scientists involved in the Chinook Recovery Plan, Ecology's regional status and trends monitoring, PSAMP, PNAMP, NAWQA, and other monitoring and assessment efforts.

The monitoring and assessment strategies may offer specific ideas about implementation, especially by highlighting opportunities to work with and build on existing programs that might be able to include stormwater-related sampling in their ongoing program. To this end, each Task Group will identify existing capacity that could be available and provide a general idea of what additional funds, staffing, equipment and other resources would be necessary to guarantee full implementation of the strategy. This information will be the starting point for a future Task Group responsible for developing the monitoring implementation plan.

Deliverables: 1) Ambient status and trends monitoring and assessment strategy
2) Stormwater characterization monitoring and assessment strategy
3) Management action effectiveness monitoring and assessment strategy

Timeline: Begin in April 2009 and complete in November 2009.

Task 5: Direct a Task Group to develop a single coordinated implementation plan for the monitoring and assessment strategies developed for all three components

The implementation plan will be developed through a Task Group comprised of key implementers of a regional study, including government agencies, universities, consultants, and others. Task Group members will need to be knowledgeable about their organizations' monitoring and assessment programs and ably represent their capacities and interests in coordinating and implementing a regional program. The Stormwater Work Group's facilitator will assist this Task Group.

The implementation plan will begin with recommendations from each of the Task Groups that developed the strategies, especially regarding existing capacity and additional resources needed. From there the group will consider what additional public and private resources might be available and how to ensure that the necessary resources are procured and deployed.

This Task Group may include specific recommendation to the Department of Ecology as to how the municipal stormwater NPDES permittees would participate in and/or contribute to implementing the monitoring and assessment program as a whole.

Deliverables: Detailed implementation plan with responsible parties, funding needs and sources, and draft MOAs, etc.

Timeline: Begin in January 2010 and complete in April 2010.

STORMWATER WORK GROUP

Task 6: Stormwater Work Group review and approval of the monitoring and assessment strategies and the implementation plan

Task groups will provide timely updates to the Stormwater Work Group for input during development of the strategies. The Work Group will review the proposed monitoring and assessment strategies and the implementation plan, and may suggest revisions. The Work Group will discuss substantial revisions and decide how best to move forward. After adequate review and input, the plans will be approved. The Stormwater Work Group will similarly hear updates about, and review, discuss, and approve, the implementation plan.

Deliverables: 1) Approved ambient status and trends strategy
2) Approved stormwater characterization strategy
3) Approved management action effectiveness strategy
4) Approved implementation plan

Timeline: Review and discuss three monitoring strategies at November 2009* meeting and approve at December 2009 meeting. Review and discuss implementation plan at April 2010 meeting and approve at May 2010 meeting. Complete package delivered to the Department of Ecology, the Puget Sound Partnership, and other interested parties no later than June 30, 2010.

** Note: the November 2009 meeting needs to be longer (all day?) to meet this timeline*

Task 7: Host public forums to discuss the regional stormwater monitoring and assessment program

Opportunity for technically engaged people (primarily stormwater managers and scientists) to comment on the initial stages of developing the regional stormwater monitoring and assessment program, including prioritization of the assessment questions and preliminary assignments to the Task Groups. The workshops should also provide an opportunity to connect our work to other monitoring efforts. The first workshop will allow early input on the Stormwater Work Group's approach to developing a regional monitoring strategy. The second workshop will allow for review of the strategy that has been developed.

Deliverable: Two workshops, one early and one later in the process of developing the monitoring strategy.

Timeline: Agree to purpose and scope, and intended audience, in January 2009.
Steering Committee planning meeting for first workshop on February 24, 2009.
First workshop, likely on May 19, 2009, to gather input on priorities and proposed approach to developing the regional monitoring strategy.
Steering Committee planning meeting in August to plan second workshop.
Second workshop, tentatively November 10, 2009, to gather input on the monitoring plans developed by the Task Groups.

STORMWATER WORK GROUP

TASKS, TIMELINE AND STAFFING:

Task	Start Date and Deadline	Committee	Staffing
0.0 Project Start	June 2008	Puget Sound Monitoring Consortium Governance Committee	Project Manager and Consortium Facilitator
0.1 Draft Charter, Bylaws and Work Plan	June 2008 - September 2008	Launch Committee	Project Manager
0.2 Preliminary Assessment Questions	July 2008 - August 2008	Launch Committee	Project Manager
1.0 Convene Stormwater Work Group	August 2008 - October 2008	Launch Committee	Project Manager
2.0 Refine preliminary stormwater assessment questions	October 2008 - December 2008	Steering Committee	Facilitator and Project Manager
1.1 Adopt Charter, Bylaws and Work Plan	October 2008 - January 2009	Stormwater Work Group	Facilitator and Project Manager
3.0 Identify technical experts to guide prioritization	January 2009	Stormwater Work Group	Facilitator and Project Manager
3.0 Prioritize assessment questions	February 2009	Technical experts	Project Manager and consultants?
7.0 Plan and hold public workshops	February 2009 - November 2009	Steering Committee and Stormwater Work Group	Project Manager and consultant?
4.1 Develop strategy for characterization	April 2009 - November 2009	Task Group 1	Consultant and Project Manager
4.2 Develop strategy for efficacy	April 2009 - November 2009	Task Group 2	Consultant and Project Manager
4.3 Develop strategy for status and trends	April 2009 - November 2009	Task Group 3	Consultant and Project Manager
6.0 Approve plans	November 2009 - May 2010	Stormwater Work Group	Facilitator and Project Manager
5.0 Develop coordinated implementation plan	January 2010 - April 2010	Task Group 4	Facilitator and Project Manager; three consultants?
6.0 Near-term work completed	June 2010	Stormwater Work Group	Facilitator and Project Manager

STORMWATER WORK GROUP

PROPOSED SCHEDULE FOR YEAR ONE

The following meeting dates and activities are scheduled through June 2009. Task Group and Steering Committee meetings will be added to this schedule.

July 2008

SWG Launch Committee meeting on July 9

- Discuss draft charter, bylaws and work plan (Task 0.1)

SWG Launch Committee meeting on July 22

- Identify preliminary assessment questions (Task 0.2)

Puget Sound Monitoring Consortium Governance Committee meets July 9

Puget Sound Partnership Leadership Council meets July 23-24

August 2008

SWG Launch Committee meeting on August 13

- Select interim chair (Task 0.0)
- Agree to draft charter, bylaws and work plan to forward to Stormwater Work Group (Task 0.2)
- Plan first Stormwater Work Group meeting (Task 1.0)

Science Panel meets August 6-7

Puget Sound Monitoring Consortium Governance Committee meets August 13

Partnership staff will release Assessment Questions document for review beginning August 15 and discussion at a workshop to be held on September 15

September 2008

SWG Launch Committee meets September 18

- Finalize Proposed Work Plan and agenda for first Stormwater Work Group meeting (Tasks 0.1 and 1.0)

Leadership Council meets September 4-5

~~*Monitoring Consortium and Science Panel "Conversation" on Assessment Questions and Regional Monitoring Framework will be held on September 15 (the Partnership postponed this workshop indefinitely; this Work Group would like to participate in and be informed by a broad-scope discussion of this type)*~~

Science Panel meets September 16-17

Puget Sound Monitoring Consortium Governance Committee meets September 18

October 2008

Stormwater Work Group meets October 9

- High-level discussion of founding documents: charter, bylaws, and work plan (Task 1.2)
- Agree to process and subcommittee for prioritizing assessment questions (Task 2.0)

Steering Committee meets October 15

- Respond to direction from Stormwater Work Group
- Identify prioritization criteria and begin further organization of preliminary assessment questions (Task 2.0)

Science Panel meets October 7

Puget Sound Monitoring Consortium Governance Committee meets October 15

November 2008

Steering Committee meets November 12 and 25

- Finalize refining and organization of preliminary assessment questions and propose starting point for prioritization (Tasks 2.0, 3.1)
- Confirm process and criteria for Stormwater Work Group decision (Tasks 2.0, 3.1, 3.2, 3.3)

Puget Sound Monitoring Consortium Governance Committee meets November 12

Science Panel meets November 18-19

December 2008

Stormwater Work Group meets December 11

- Adopt "living" documents: charter and bylaws (Task 1.2)
- Prioritize monitoring objectives for a regional stormwater monitoring and assessment plan (Tasks 3.1, 3.2, 3.3)

Puget Sound Monitoring Consortium Governance Committee meets December 10

STORMWATER WORK GROUP

Science Panel meets December 16-17

January 2009

Stormwater Work Group meets January 27

- Adopt “living” work plan; discuss future staffing needs (Task 1.2)
- Dialogue about near term and long term vision
- Launch three groups of technical experts to prioritize assessment questions in each category (Task 3)
- Plan Public workshops – purpose and desired outcomes (Task 7)
- Nominate Chair and Vice-Chair (Task 1)

Science Panel meets January 13-14

Puget Sound Monitoring Consortium Technical Advisory Committee meets January 21

Ecosystem Coordination Board meets January 29

February 2009

Technical expert groups meet February 17, 18, and 19 from 9-3

- Identify priority objectives and outline scope of work for each Task Group (Tasks 3.1, 3.2, 3.3)
- Determine whether consultants are needed to lead/staff the Task Groups (Tasks 4.1, 4.2, 4.3)

Stormwater Work Group meets February 24

- Approve Chair and Vice-Chair (Task 1)
- Technical expert groups present priorities for each component of a regional stormwater monitoring and assessment strategy (Tasks 3.1, 3.2, 3.3)
- Discuss assignments for Task Groups and whether assistance will be needed to lead/staff each group (Task 4)
- Plan first meetings of the Task Groups: draft invitation letters; set first meeting agendas; draft work plans that identify a schedule with interim and final deliverables (Task 4.1, 4.2, 4.3)

Steering Committee meets February 24 afternoon

- Plan first public workshop – location, invitations/announcement, meeting agenda (Task 7)
- Draft RFP for consultants to lead Task Groups (Task 4)

Puget Sound Georgia Basin Research Conference February 8-11

Leadership Council meets February 19-20

Science Panel meets February 26

March 2009

Stormwater Work Group meets March 24

- Discuss input from public workshop (Task 7.0)
- Formally adopt near-term monitoring objectives and scopes of work for each component of a regional stormwater monitoring and assessment strategy (Tasks 3.1, 3.2, 3.3)
- Finalize plans for first meetings of each Task Group (Task 4.1, 4.2, 4.3)

Science Panel meets March 10-11

April 2009

Task Groups begin meeting to develop the monitoring and assessment strategy (Task 4)

Stormwater Work Group meets April 28

- Briefings on other regional stormwater characterization and pollutant loadings efforts (Task 3.2)
- Updates from Task Groups (Task 4)

Ecosystem Coordination Board meets April 23

Science Panel meets April 29

May 2009

Task Groups continue meeting to develop the monitoring and assessment strategy (Task 4)

Public Workshop May 19 from 10-3

- Update the technical community and gather input for Work Group and Task Groups developing the regional stormwater monitoring and assessment program (Task 7.0)

Stormwater Work Group meets May 26

- Briefings on other regional efficacy monitoring efforts (Task 3.3)
- Updates from Task Groups (Task 4)

Leadership Council meets May 27-28

Science Panel meets May 7-8

STORMWATER WORK GROUP

June 2009

Task Groups continue meeting to develop the monitoring and assessment strategy (Task 4)

Stormwater Work Group meets June 23

- Briefings on other regional status and trends monitoring efforts (Task 3.1)
- Updates from Task Groups (Task 4)

Science Panel meets June 24

PROPOSED SCHEDULE FOR YEAR TWO

The following meeting dates and activities are proposed through June 2010.
Task Group and Steering Committee meetings will be added to this schedule.

July 2009

Task Groups continue meeting to develop the monitoring and assessment strategy (Task 4)

Stormwater Work Group meets July 28

- Updates from Task Groups (Task 4)

Science Panel meets July 8-9

Leadership Council meets July 16-17

Ecosystem Coordination Board meets July 30

August 2009

Task Groups continue meeting to develop the monitoring and assessment strategy (Task 4)

Stormwater Work Group meets August 25

- Updates from Task Groups (Task 4)
- Discuss plans for second public workshop (Task 7)

Steering Committee meets August 25 afternoon

- Plan second public workshop – location, invitations/announcement, meeting agenda (Task 7)

Science Panel meets August 26

September 2009

Task Groups continue meeting to develop the monitoring and assessment strategy (Task 4)

Stormwater Work Group meets September 22

- Updates from Task Groups (Task 4)

Leadership Council meets September 2-3

Science Panel meets September 9-10

October 2009

Task Groups continue meeting to develop the monitoring and assessment strategy (Task 4)

Stormwater Work Group meets October 27

- Updates from Task Groups (Task 4)

Ecosystem Coordination Board meets October 14

Science Panel meets October 28

November 2009

Task Groups complete the monitoring and assessment strategy (Task 4)

Public Workshop November 10

- Update the technical community and gather input for Work Group and Task Groups developing the regional stormwater monitoring and assessment program (Task 7.0)

*Stormwater Work Group meets November 17 **** this is an all day meeting***

- Review and discuss completed monitoring strategies presented by Task Groups (Task 4)
- Consider composition of the Implementation Task Group (Task 5)

Leadership Council meets November 2-3

Science Panel meets November 17-18

STORMWATER WORK GROUP

December 2009

Stormwater Work Group meets December 15

- Formally adopt the monitoring strategies (Task 6)
- Finalize composition of the Implementation Task Group (Task 5)

January 2010

Implementation Task Group begins regular meetings (Task 5)

Stormwater Work Group meets January 27

- Update from Implementation Task Group (Task 5)

February 2010

Implementation Task Group continues meeting (Task 5)

Stormwater Work Group meets February 24

- Update from Implementation Task Group (Task 5)

March 2010

Implementation Task Group continues meeting (Task 5)

Stormwater Work Group meets March 24

- Update from Implementation Task Group (Task 5)

April 2010

Implementation Task Group completes its plan (Task 5)

Stormwater Work Group meets April 28

- Review and Discuss proposed plan presented by Implementation Task Group (Task 5)

May 2010

Stormwater Work Group meets May 26

- Approve Implementation Plan (Task 6)
- Discuss formal transmittal of documents to Ecology and Partnership (Task 6)
- Propose next fiscal year's work plan

June 2010

Stormwater Work Group meets June 23

- Approve final documents and transmittal letter to Ecology and Partnership (Task 6)
- Approve work plan for July 2010-June 2011

STORMWATER WORK GROUP

Appendix 1 – Revised Preliminary Assessment Questions

INTRODUCTION

This set of preliminary assessment questions for stormwater originated from a two-step brainstorming activity by the “Stormwater Work Group Launch Committee” of the Puget Sound Monitoring Consortium at the request of the Puget Sound Science Panel. The original list of questions provided a quick snapshot from a limited group of people that is intended to inform future discussions of priorities for stormwater monitoring and assessment activities. Following the first Work Group meeting, the Steering Committee refined and reorganized the questions to facilitate meaningful discussion and ranking of priorities. Identification of data needs and appropriate study designs will be done in future steps.

The prioritization and refinement of these questions will be critical in the development of focused, management-driven actions at the federal, tribal, state and local levels. The Stormwater Work Group should discuss more specifically:

- Which of these questions are priorities?
- What are the testable hypotheses for the priority questions?
- Which questions should a Task Group “flesh out” first?
- What level of certainty is needed now and in the future for adapting policies and actions?

DEFINITIONS

Ambient: means in the receiving water, sediments, biota or other media

Characterization: means quantifying pollutant loads, concentrations, and mitigating factors

Effectiveness: includes evaluation of a variety of types of management activities at multiple scales and in multiple combinations, e.g. at the project, watershed, and basin scales and for cumulative projects and/or approaches at each of those scales.

Pathway: a mechanism by which pollutants move through the ecosystem. For this discussion, we consider stormwater to be a pathway for pollutants rather than a source.

Pollutants/stressors: toxics, nutrients, pathogens, temperature, sediment, and flow volume.

Source control: various means of preventing pollutants from entering stormwater and other pathways, including structural and operational practices, product substitutions, and behavior changes.

Status and Trends: means assessing the temporal and spatial distribution of both (1) the effects of pollutants in stormwater on biota and other beneficial uses and (2) the characteristics of stormwater runoff, including quantification of pollutant loads.

Stormwater: runoff from developed and developing lands during and after precipitation.

Toxic chemicals: include metals [Cu, Cd, Hg, Pb, Zn, others]; PAHs; oil; pesticides; phthalates; flame retardants; legacy chemicals; and other chemicals and categories of concern such as personal care products, pharmaceuticals, and emerging contaminants.

STORMWATER WORK GROUP

ASSESSMENT QUESTIONS TO PRIORITIZE

STATUS AND TRENDS – IMPACTS OF STORMWATER ON BENEFICIAL USES

What are the *effects* of flows and pollutants in stormwater on receiving waters and beneficial uses?

- What are the effects/potential impacts of pollutants/stressors from stormwater on the habitat and quality of our marine, lake, stream, ground, and other receiving waters? On biota? On human health?
 - What are the best indicators that stormwater has impacted water or sediment quality, habitat or biota?
 - Which pollutants/stressors most influence biota or human health? Where or under what conditions?
 - What are the concentrations of *nutrients and pathogens* in waters that receive stormwater and where do nutrients and pathogens have the greatest impact on human health and biota?
 - What are the concentrations of *toxic chemicals* in waters and sediments that receive stormwater and where do toxic chemicals have the greatest impact on human health and biota?
 - What is the relative severity of the impact of specific toxic chemicals, or categories of toxic chemicals, in stormwater?
 - What are the chronic and acute effects of toxic chemicals in stormwater? What are the processes/mechanisms by which toxic chemicals harm biota?
 - What are the effects of altered *flow* rates and volumes from stormwater? How do these changes impact the habitat and biota?
- Where does stormwater significantly impact receiving waters, resources, species, or beneficial uses in the Puget Sound basin?
 - Where does stormwater *currently* have a known, defined impact on water quality, habitat, or biota, and where may stormwater soon *become* a problem?
 - What are the potential impacts of climate change on stormwater?
 - Where do altered *flow* rates and volumes from stormwater have the greatest impact?
 - What differences in magnitude and timing of peak and low flow in a particular basin (WRIA) are due to stormwater?
 - What size, location, or other variable makes a particular stormwater discharge more or less likely to cause harm?
 - How does stormwater from one part of the Puget Sound basin affect other parts?
 - What is the relationship between stormwater discharges and habitat and water quality conditions in the nearshore environment?
 - What is the relationship between stormwater discharges and water quality conditions in deepwater Puget Sound?

STORMWATER WORK GROUP

STATUS AND TRENDS – STORMWATER CHARACTERIZATION AND POLLUTANT LOADINGS

What are the *relative contributions* of stormwater to harm compared with other pathways in the Puget Sound basin? How do these relative contributions vary geographically and how are they changing over time? Where did the pollutants in each part of the Puget Sound basin come from?

[Note: Although these questions are beyond the scope of the Stormwater Work Group, we propose to contribute to the overall answers by answering the highest priority questions about stormwater.]

- What are the concentrations of toxics, nutrients and pathogens entering Puget Sound and the food chain from stormwater?
 - What are pollutant concentrations and loads from stormwater? What factors affect fate and transport of stormwater pollutants? How do concentrations and loads vary based on geography, geology, climate, land use, season, and other conditions? Where are the greatest loads? Where do we need to be focusing our efforts?
 - What proportions of the pollutants (nutrients, pathogens, toxic chemicals) in stormwater reach surface waters via: air deposition, specific land uses (commercial, residential, industrial, transportation), groundwater, spills, permitted point sources?
 - What is the variability in stormwater pollutant loads by land use or geographic area? What other variables influence the spatial and temporal distribution of pollutant loads?
 - How does land use influence pollutant concentrations and loadings? What pollutants are coming from each land use type and what are the primary and secondary sources of those pollutants? What land uses or land use combinations are of greatest interest?
 - What factors within a land use control pollutant concentrations and loadings?
 - ◇ How do differences in stormwater infrastructure (*i.e.*, pipes versus ditches) affect pollutant loads and flows from similar land uses?
 - How do air transport and deposition affect stormwater pollutant loads?
 - What proportion of pollutant loads from stormwater reach Puget Sound? Where significant differences exist (*i.e.*, pollutant loads do not “add up” likely due to losses between upper reaches and mouths of rivers/streams) what are the explanations for the differences?
 - What is the seasonal and annual variation in toxics concentrations and loadings throughout the Puget Sound basin?

EFFICACY OF STORMWATER MANAGEMENT

Are our stormwater management actions preventing and reducing future harm in Puget Sound?

- How effective are the current suite of BMPs in preventing and reducing future harm?
 - What techniques are most effective at the site or local scale, and under what conditions?
 - Among the most widely used practices and promising new practices that are available, what specific individual BMPs are most effective in reducing pollutant loads at new development sites?
 - ◇ How effective are structural treatment BMPs in reducing pollutant loads?
 - ◇ How effective are source control practices in reducing pollutant loads?

STORMWATER WORK GROUP

- ◊ How effective are infiltration practices in reducing pollutant loads?
- To what extent are Low Impact Development (LID) and other flow management approaches effective in preventing and reducing future harm?
 - What is the ability of watershed-scale application of low impact development in an area of new development to effectively maintain the hydrologic regime in a stream?
 - Is there a significant difference in stream flows in basins where LID is encouraged and practiced?
 - How do LID practices affect critical areas and wetlands?
- What specific techniques or combinations of techniques are most effective at the collective or regional scale and under what conditions?
 - What is the effectiveness of watershed-scale combinations of stormwater management actions (techniques) at reducing harm?
 - ◊ Under what conditions are findings likely to be transferable to other watersheds?
 - How effective are cumulative BMPs, or targeted suites of BMPs, in reducing pollutant loads at a watershed scale? At the Puget Sound basin scale?
 - What changes in land use practices are most effective in reducing pollutant loads?
 - What are the most effective land use planning tools to protect existing high-functioning habitat from harm caused by stormwater?
- Are there unintended effects of BMPs?
 - Are there places where stormwater management practices are causing harm?
 - To what extent are BMPs for flow control reducing particulate pollution and exacerbating temperature problems?
 - Can stormwater be infiltrated into the ground without creating a soil or shallow groundwater pollution problem?

How can we most effectively target and prioritize retrofit projects throughout the Puget Sound basin to reverse past harm?

- To what extent can retrofits reverse past harm? To what extent can the beneficial uses of water bodies be restored in sub-basins that already have some degree of development? At what degree of development, or under what other specific conditions, is a particular retrofit strategy most likely to be successful?
 - Among the most widely used practices and promising new practices that are available, what specific retrofits or restoration practices are most effective in reducing pollutant loads and recovering damaged habitat?
 - What are the benefits of restoring hydrologic equilibrium to an urban stream that is not returned to its historic condition?
 - To what extent can retrofits reduce loading of toxic chemicals to surface waters and sediments in an urban watershed?
 - To what extent can retrofits reduce loading of nutrients and pathogens to surface waters in a suburban or rural watershed?

STORMWATER WORK GROUP

- How effective are source control practices in reducing pollutant loads from existing development?
 - How effective are site-specific or targeted land use practices?
 - How effective are public education and outreach in achieving behavior changes that result in reduced pollutant loads?
 - How much will new practices, products, or product substitutions used on the landscape reduce pollutant loads? Are they better or worse than existing practices/products for pollutants of concern?
- To reduce pollutant loads, is it most effective to target new development, retrofit existing development, or a combination of both?

STORMWATER WORK GROUP

Appendix 2 – Puget Sound Science Panel Strategic Priorities for Stormwater

*From p. 13 of the 9/15/08 Draft of the Biennial Science Work Plan
(One of four topics of priority interest, subject to the Panel's revision)*

Watershed-scale study of changes in land use patterns or stormwater management strategies on pollutant loads in stormwater and biological effects

Seeking projects that address the four Partnership strategic priorities in watersheds of approximately 100 square miles in size:

1. Focus on most important/urgent problems

Measure/define the effects of stormwater on receiving waters, habitat, biota or human health in a watershed: what size, location, or other variable makes a particular stormwater discharge more or less likely to cause harm?

2. Protect intact ecosystems

Does watershed-scale application of LID maintain the hydrologic regime in a stream?

3. Restore ecosystem processes

To what extent can retrofits reverse past harm? Measure benefits of retrofitting a basin to:

- (a) restore hydrologic equilibrium to an urban stream, but not return to its historic condition
- (b) reduce toxics in an urban watershed
- (c) reduce nutrients/pathogens in a suburban or rural watershed

4. Reduce pollution at the source

Evaluate the effectiveness of watershed-scale combinations of stormwater management actions/techniques at reducing harm in Puget Sound and identify under what conditions these findings are likely to be transferable to other watersheds.